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Senior Project

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Minority Healthcare Disparities

BIS 437 – Integrated Studies Research

Murray State University

Abstract

Healthcare disparities continues to be one of the nation's most important healthcare challenges to date. For reasons reviewed disparities disproportionately affect minorities and low-income individuals. These individuals are more likely to be uninsured and have higher rates of chronic diseases compared to their counterparts. Surveillance of health status in minority communities explains why this problem in the United States is so important to the future of the country, data shows the number of racial and ethnic minorities in the United States are growing at a fast rate, but structures designed to monitor the health status and disparity factors surrounding this group is limited.

Before we determine what factors cause health disparities and how certain groups are affected by these factors, it's critical to determine a few important definitions, and how they relate to the following research review. The U.S. Department of Health and Human Services (HHS) defines health disparities as:

“A particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.” (Healthy People 2020)

Statistics collected show there are obvious disparities in quality of health among Americans living in the United States. The purpose of this literature is to investigate factors that influence healthcare quality in the United States, determining if the health in equality issue in America is disproportionately distributed within the population, and whether race/ethnicity and

socioeconomic status play a major role. Knowing this will empower communities affected by these inequalities, improving their health and overall quality of life. This information will also allow healthcare providers, public health practitioners, policies makers, and community leaders to work in partnership with researchers by looking outside of the clinical setting to improve social determinants that contribute to health disparities.

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What are Health Disparities?

Health Disparities as defined by the CDC are preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by socially disadvantaged populations (2019), populations are defined by the Merriam-Webster dictionary as the total of individuals occupying an area or making up a whole (hacker). The term Health disparities is broadly used in the United States and is commonly referred to and interchangeable with Health Inequality. Combining the two definitions describes a health disparity in a population as “. . . a significant disparity in the overall rate of disease incidence, prevalence, morbidity, or survival rates in the population as compared to the health status of the general population (Steel, Melendez-Morles, Campoluci, DeLuca, Dean 2007)”. Other definitions of health disparities examine the role of social status and control over one’s life as important influences on health disparities (Steele et al. 2007).

For the purpose of this literature populations will be categorized by race/ethnicity, socioeconomic status, education, and/or geographical location. Health disparities exist across a wide range of diseases, however as we look at the most common illnesses and death related diseases we find consistency across the populations affected by the most prevalent diseases. One of the leading organizations conducting research and preventative efforts surrounding health disparities is The Center for Disease Control and Prevention. The CDC as described on the official website started in Atlanta, Georgia on July 1, 1946 with the mission of preventing the spread of malaria. Today the CDC is one of the key functioning components of the Department of Health and Human Services. The CDC helps to keep Americans safe, by fighting diseases and

supporting communities and citizens in the fight to stay healthy. To accomplish this goal the CDC conducts critical research and provides useful data to protect our nation's public health.

The CDC works to generate reports surrounding the issues of health disparities in the United States. The work and research conducted by the CDC and its partners provide useful data regarding the causes of illness, deaths and correlations that can be made to identify what populations suffer the most, and what health factors and social determinants accompany these health disparities. Healthcare disparities refer to the differences in health and healthcare among different populations. These differences can occur across many different subgroups based on demographics such as race/ethnicity, socioeconomic status, age, geographical location, gender, and genetics. Many factors leading to health disparities are considered socioeconomic statuses including poverty, lack of access to quality health care, race, and educational level. This research is intended to document the extent to which socioeconomic disparities continue to have impact on indicators of health status, health behaviors and other risk factors within the United States.

Factors Surrounding Health Disparities

Race

Historically, health disparities disproportionately affect a specific group of the population. These groups can be clustered together based on several status including and not limited to: socioeconomic status, race, gender, geographical location, and or income level. As we will read in the literature to follow, many individuals fall into multiple at-risk categories, thus making them more susceptible to facing the challenges of health disparities. For example, African-Americans lacking higher paying jobs, are at greater risk for not being able to obtain healthcare, thus making them more prone to complications associated with health inequalities. One of the

most challenging factors that effects the health and lives of individuals, is race. Race and ethnic disparities are arguably the most obstinate inequities in health over time, despite the many strides that have been made to improve health in the United States. Moreover, race and ethnicity are extremely salient factors when examining health inequity (Bell and Lee, 2011; Smedley et al., 2008; Williams et al., 2010). For racial minorities in the United States health disparities include, higher rates of chronic diseases and premature death compared to their white counterparts. While this is true for African Americans, it's not totally consistent with immigrants to the U.S., for example Hispanic immigrants who have recently migrated to the U.S. tend to have better health than whites, which this better quality of health tends to diminish after settlement (Lara et al., 2005). This information proves there are systematic and social challenges minorities face living in the U.S. as it relates to public health.

Geographical Location

As we will learn further in the literature by diving deeper into specific chronic diseases, geographical location becomes a consistent factor that influences those that are affected by health disparities. Geographical location within the U.S. is grouped into five major regions based on geographical position in the continent. These five include: Northeast, Southwest, West, Southeast, and Midwest. Research shows there are disparities that correlate with different regions within the United States and even in certain communities within the same city. For example on the regional level obesity, a condition associated with chronic disease, mortality, and decreased overall well-being is concentrated in the South and Midwest (Levi et al., 2015b). An example of disparities on neighborhood level is found in New Orleans where life expectancy can vary by as much as 25 years from one neighborhood to the next (Evans et al., 2012; Zimmerman and Woolf, 2014). Because rural communities often face greater challenges addressing disparities

compared with their urban counterparts, rural communities have higher rates of preventable conditions (such as obesity, diabetes, cancer, and injury), and higher rates of related high-risk health behaviors (such as smoking, physical inactivity, poor diet, and limited use of seatbelts) (Crosby et al., 2012).

Income Level (Socioeconomic Level)

Across almost every health indicator (life expectancy, healthy diet, diabetes, obesity, aids, asthma) lower class citizens face greater health challenges. In 2004, 24.7% of blacks and 21.9% of Hispanics lived in poverty; these are the highest percentages across all racial and ethnic groups (Steel et al. 2007) Those individuals with low income and least amount of education are less healthy than their wealthy most educated counterparts. Health in the United States is often strongly correlated with not only race/ethnicity, but research suggest links between social disadvantage and health. Using this data health providers and politicians should look outside of genetics and the clinical setting to address healthcare disparities. Looking towards the future, greater respect should be given to the correlations between socioeconomic (education and income) levels when addressing health. For example, grouping health disparities socially allows them to be targeted as such, data suggesting those living at or below poverty levels have higher rates of illness, which would support the effort to target policies to address aspects of social deprivation (substandard housing, violent neighborhoods). The absence of adequate data on socioeconomic differences overall and within racial/ethnic groups can lead policymakers, researchers, and practitioners to make unfounded assumptions about the nature of both socioeconomic and racial disparities (Braveman). The income gap is also expected to increase. Minorities make up a disproportionate share of the low-income and the uninsured relative to their size in the population, the growth of communities of color and widening of income gaps amplify

the importance of addressing health and health care disparities (The Henry J. Kaiser Family Foundation, 2019). In general, the low income faces greater healthcare complications. African Americans and Hispanics have far higher rates of poverty, near-poverty, and low educational attainment than do whites and are underrepresented at higher levels of income and education, which rather than genetics, could explain the health equality gap. This is important to health because healthy lifestyle choices often come with a cost, individuals struggling to meet Maslow's basic hierarchy of needs, often struggle to find the means to live a healthy life style. Focusing on ways to either increase or supplement lower income level individuals combined with the proper education will have a positive impact on public health.

Educational Level

Education is a widely used indicator of socioeconomic status in the United States. Educational attainment is a major determinant of earnings. In addition, education is also likely to influence health through a variety of cultural, social, and psychological mechanisms (Liberatos). The higher-level education an individual has, the greater chance they have of being exposed to beneficial health related information, as well as being aware of the importance of adopting healthy life style behaviors. Educational attainment also differs substantially by race and ethnicity. The race and ethnic patterns in household income are mirrored in the educational distributions of these groups. Among persons 25 to 64 years of, 45% of Asian or Pacific Islanders and nearly 30% of white persons have college degrees, compared with 15 % of African American persons and 10% of Hispanic persons. This pattern is essentially reversed at the low end of educational attainment; 10% of white persons and 14% of Asian or Pacific Islander persons have not completed high school, compared with 20% of African Americans persons and 44% of Hispanic persons (Pamuk). Education level is an important link to addressing health care

inequity, the correlation between education and occupation is a major reason why, largely impart because the occupation and income level are directly interconnected. The higher level of education an individual has the greater chance they have of being aware of the importance to health, and they become more likely to generate higher income levels allowing them greater access to quality holistic healthcare. The above research proves the higher income, the less likely an individual is to experience health inequalities challenges.

Why Healthcare Disparities are Important?

Addressing healthcare disparities becomes critical to the future of American public healthcare. According to the U.S. in 2014 Census Bureau, 37.9 % of the population was identified to be racial or ethnic minorities in 2016 (NCHS, 2016). Minority populations, which already constitute majorities in some cities and states, is expected to become the majority nationwide within 30 years. By the year 2044, minorities will account for more than half of the total U.S. population (Colby). Numbers suggest, as minority populations are projected to increase, healthcare disparities faced disproportionately by minorities are a great challenge that can no longer be over looked. This becomes an issue not only for the those directly impacted by disparities but, also for the future of the American public healthcare. So, while racial minorities are expected to rise substantially in the next 30 years, it becomes ever more important to address these disparities, as they will continue to have an everlasting impact on the health and well-being of our country.

The social aspect of addressing health is important. All citizens should have an equal opportunity to living the healthiest life possible. Regardless of social rank, ethnicity/race, or geographical location, it becomes important for the future of our nation, as it depends on the health of the individuals that contribute to it.

Healthcare disparities have a major impact on the cost associated with treating the health complications as well. The money spent on addressing health disparities could be used to better serve the healthy system, and social issues surround disparities. A recent analysis estimated disparities cost rise to roughly \$93 billion in excess medical care cost (Ani). A review of the table below shows the economic impact of health disparities: Table 1 (LaViest T, Gaskin D, and Richard P; *The Economic Burden of Health Inequalities in the United States*, 2009. Findings of a Commissioned Report from the Joint Center for Political and Economic Studies.)

	Impact
Combined costs of health inequalities and premature death	\$1.24 trillion
Potential reduction in the indirect costs associated with illness and premature death if minority health inequalities were eliminated	\$1trillion
Potential reduction in direct medical care expenditures if minority health disparities were eliminated	\$229.4
Percent excess direct medical care expenditures for African Americans, Asians, and Hispanics that were due to health inequalities	30.6%

What's Being Done to Address Health Disparities?

Although effort and progress has been made towards reducing the health disparity challenge, we as Americans, community leaders, healthcare providers, politician, parents, and patients still have work to do. The research surrounding this issue began only in the early 2000's which became the foundation of data suggesting there is in fact patterns of unevenly distributed health related issues. The Minority Health and Health Disparities Research and Education Act of 2000 was the first major legislation focused on reduction of disparities (The Henry J. Kaiser Family Foundation, 2019). The Minority Health and Health Disparities Research and Education Act of 2000 created the National Center for Minority Health and Health Disparities and authorized the Agency for Healthcare Research and Quality (AHRQ) to regularly measure progress on reduction of disparities (The Henry J. Kaiser Family Foundation, 2019). Soon after, the Institute of Medicine released two seminal reports documenting racial and ethnic disparities in access to and quality of care (The Henry J. Kaiser Family Foundation, 2019). This was an important step towards addressing healthcare disparities, as much of the following research review will draw from data collected by the AHRQ. Once data exist surrounding the issue progress could be made toward improving minority health.

To address the uninsured issues many Americans were facing Congress and policy makers made a compromised decision to overhaul the pervious health care system. The result of this issue was a comprehensive law enacted in March 2010 and became formally known as The Patient Protection and Affordable Care Act (PPACA) commonly referred to as the Affordable Care Act of 2010 (ACA), or simply "Obama Care", named after the 44th U.S. President Barack

Obama who officially signed the ACA on March 3, 2010. The ACA was phased in over a period of four years. According to the official site Healthcare.gov. The ACA has three Primary goals:

1. Expand access to health insurance
2. Protect patients against arbitrary actions by insurance companies
3. Reduce costs

The ACA addressed a major issue surrounding healthcare challenges faced by many Americans, which made it possible for millions of uninsured minorities to have access to affordable healthcare coverage. Too many Americans facing high rates of preventable health related mortalities, lacked access to health care, and health insurance companies made coverage for people who needed it most, too expensive. The Hispanic population for example, is the fastest growing subgroup of the US population, as of 2002, there were 37.4 million Hispanics in the United States, representing 13.3% of the total mainland population (Borrell), but Hispanics represents a larger percentage of the uninsured population. This becomes a problem because Hispanic Americans as will see in detail in the following research review, also represent a large percentage of the population who have healthcare challenges such as diabetes, cardio vascular disease, and obesity. While much work is still to be done, between 2013 and 2016, the uninsured rate declined substantially for poor and working-class adults. African Americans and Hispanics, who had higher uninsured rates than whites prior to 2014, had larger coverage gains from 2013 to 2016 than non-Hispanic Whites (Garfield). This is important because having health care coverage is an important factor when addressing the rate, treatment, and prevention of health care risk factors, and health disparities.

Conducted research and review of data prove for those living in certain communities where conditions like asthma, infant mortality, heart disease, obesity, and HIV/AIDS are disproportionately prevalent, genetics is not the sole cause of healthcare disparities. Carefully examining these health issues will provide data that suggest improving the health of minority communities, depends on efforts made to improve social determinants surrounding health disparities. For example, patterns are consistent with all health-related conditions including equal access to healthy food options, environment, physical activity, education, and yearly income. Being that these conditions present the biggest challenge for minority populations (black or African-American and Hispanic) within the U.S. Health system, this is where much of the focus of the following research will be spent. This information will allow healthcare providers and public health officials to work in parallel with researchers by going outside of the clinical setting to improve social determinants that contribute to health disparities, rather than focusing on exclusively genetics.

What is Obesity?

Obesity is a result of taking in more calories than are burned during daily activities and physical exercise. Obesity occurs when a person's body mass index is greater than 30. Though it does have limitations, BMI is a useful measure of overweight and obesity, based on height and weight that applies to adult men and women ("Maintain a Healthy Weight", 2019). The main symptoms are excessive body fat, which increases the risk of serious disease (Ogden). Fat is known to make internal organs work harder, this preventable weight related condition has long been associated with chronic diseases such as heart disease, stroke, type 2 diabetes, and hypertension. As the review of studies below will prove Obesity is an equity issue.

Who Obesity Impacts?

All individuals can become obese, however patterns suggest obesity disproportionately affects low-income and rural communities, as well as certain racial and ethnic groups, including African Americans, Latinos and Native Americans. Since 1960, the prevalence of adult obesity in the United States has nearly tripled, from 13% in 1960-1962 to 36% during 2009-2010 (CDC Obesity), why this group is so heavily impacted is partially due to the lack of behaviors by these groups as it relates to maintain healthy body weight.

Data collected from nine 2-year cycles of the National Health and Nutrition Examination Surveys (NHANES) reported overall prevalence of obesity was 39.8% and affected about 93.3 million of US adults in 2015-2016. The prevalence of obesity was higher among African Americans and Hispanic adults than among white and Asian adults. Hispanic 47% and African Americans 46.8% adults had a higher report of obesity than white adults. The pattern among women was like the pattern in the overall adult population. The prevalence of obesity was 38.0% in white, 54.8% in African Americans, 14.8% Asian, and 50.6% in Hispanic women. Among men, the prevalence of obesity was lower in Asian adults 10.1% compared with white 37.9%, African Americans 36.9%, and Hispanic 43.1% men (Flegal KM, 2019). African American men had a lower prevalence of obesity than Hispanic men, but there was no significant difference between African American and white men (Flegal KM, 2019). So, is this a result of genetics? Research suggest it's not. Now that we know African American and Hispanic woman face greater risk of being obese, I will review literature that discusses social determinants that consistently contribute to obesity, and the importance of controlling this health disparity as it relates to the complications of other public health challenges.

Factors Surrounding Obesity?

Income and Education Level

Studies have suggested that obesity prevalence varies by income and educational level within the U.S., although patterns might differ between high-income and low-income countries. However, we will look primarily at the United States. The prevalence of obesity decreased with increasing income in women from 45.2% to 29.7%, but there was no difference in obesity prevalence between the lowest 31.5% and highest 32.6% income groups among men (Ogden, Fakhouri, Carroll, et al. 2011-2014). 43% of households with incomes below the poverty line (\$21,756) are food insecure uncertain of having, or unable to acquire, sufficient food (Levine). Moreover, obesity prevalence was lower among college graduates than among people with less education for white women and men, African American women, and Hispanic women, but not for Asian women and men or African American or Hispanic men (Ogden, Fakhouri, Carroll, et al. 2011-2014). Nearly 33% of adults who did not graduate high school were obese compared with 21.5 % of those who graduated from college or technical college ("Division of Nutrition, Physical Activity, Overweight and Obesity (DNPAO) CDC", 2019). Individuals with lower education levels are also disproportionately more likely to be obese. In 2015, 34.0 % of those with less than a high school education was obese compared to 21.7 % among college graduates ("Division of Nutrition, Physical Activity, Overweight and Obesity (DNPAO) CDC", 2019). Therefore, the higher education you have the greater chance you have being aware of the importance of maintaining a healthy weight. As the research above suggest education, not genetics, plays a role in the prevalence of adult obesity. Minority women whom are most affected by obesity, should put greater focus in obtaining higher education, which would

subsequently improve health. Health officials should work with policy makers and researchers to focus on addressing social issues surrounding obesity.

Physical Activity

Physical activity is also a significant social factor leading to this obesity health disparity. Data provided by Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity proves that those who perform less physical activity, show higher prevalence of obesity. In 2016 the CDC's Behavioral Risk Factor and Surveillance System (BRFSS) conducted a National wide survey seeking to find the percentage of Adults who engage no leisure-time physical activity. According to the official CDC website, the BRFSS is the nations' leading health related telephone survey, collecting data related to health-related risk behaviors, chronic health conditions, and use of preventative services. Based on the above research results minority women need to work become more aware of the social factors surround them that lead to this health disparity.

Geographical Location

Prevalence of obesity can also be recognized by geographical location within the United States. Statics according to the CDC show all states have at least 20% of adults reporting obesity. Historically the southern region of the United States has been home to seven states with highest percentages of obesity. According to the most recent 2018 BRFSS data, adult obesity now exceeds 35% in these seven states respectively: West Virginia 38.1% Mississippi 37.3% Oklahoma 36.5% Iowa 36.4% Alabama 36.3% Louisiana 36.2% Arkansas 35.0%. Of these seven, five are considered geographically southern states. Rural counties have higher rates of

obesity than urban or suburban counties, with the highest adult obesity rates in the United States found in rural counties of Mississippi and Alabama (CDC 58). Several socioeconomic challenges surrounding those living in rural communities lead to this pattern on obesity. Rural communities rely heavily on automobile transportation, which means fewer people incorporate walking or bicycling for every day commutes. Lifestyle difference in rural communities may also mean logistic challenges for promoting healthier behaviors, such as lack of outreach programs promoting healthy weight education, less nutritional service, fewer parks, sides walks, and other infrastructure that encourage physical activity.

What's being done to address Obesity?

Because of the health complications associated with being obese it's important to address this health issue. Overweight and obesity affects two thirds of the U.S. population, and this health issue increases the risk of diabetes, hypertension, and heart disease. To address the diet aspect of obesity, federal food production and assistance programs such as the National School Lunch Program and the Women, Infants, and Children (WIC) program work to provide sufficient vegetables, fruits, whole grains to individuals who would otherwise have a difficult time consuming a healthy diet (US Department of Agriculture, Food and Nutrition Service). Supplemental programs are important to low income individuals because of the importance of eating healthy diet is to maintain healthy body weight.

Obesity is a complex problem, and there is no single solution, so it must be addressed with a multi-level approach. State and local officials can continue to provide resources to help promote healthy lifestyle behaviors based on research and evidence-based practices. Community leaders should focus on supporting healthy eating options and creating environments that

encourage active living. All individuals should focus on education regarding obesity, including knowing body weight, and striving to maintain health body mass index, life style diet changes, and meeting the daily guidelines for physical activity.

What Is Asthma?

Asthma is a chronic respiratory disease. Asthma has two physiological difficulties that make it a challenge to breath: 1) inflammation in the airways 2) airway tightening of the muscles surrounding the airways. Asthma can occur at any age but is most often diagnosed at childhood. Patients affected by asthma often show the same symptoms including: coughing, wheezing, shortness of breath, and tightness of the chest. Asthma is diagnosed based on medical history, physical exam, and results from lung function test. While researches don't know the exact cause of asthma, they believe it's a combination of genes and environmental factors. The review of the following research suggests that ethnic and socioeconomic health disparities in asthma are the result of multiple factors at the individual, clinical and community level, which affect African American, Hispanics, and socioeconomically disadvantaged communities. Improving environmental factors will greatly improve asthma related complications.

Who does Asthma Impact?

According to the National Heart, Lung, and Blood Institute asthma currently affects about 25 million people in the United States, of those 25 million 7 million are children. While asthma is a treatable health condition more than 3,000 people die each year from asthma related complications ("CDC Virtual Signs - Asthma in the US", 2019). Asthma eventually affects all ethnicities and social groups, asthma disparities among minorities is an ongoing problem. Inner

city communities and socioeconomically disadvantaged people show greater prevalence of asthma than their counterparts. African American and Hispanics, more specifically Puerto Ricans are more likely to have asthma, experience greater health risk from having asthma, have higher emergency room visits, and deaths related to asthma. The prevalence of childhood asthma among Puerto Ricans 19.2% and African American 12.7% which is significantly higher than whites 8% or Mexican Americans 6.4% (Moorman).

Factors Surrounding Asthma

In a journal published in *Environmental Health Insights* titled “Insights into the Environmental Health Burden of Childhood Asthma.” authors Tim Kelley from the Environmental Health Sciences Program Department of Health Education and Promotion, East Carolina University, Greenville, NC and Gregory D. Kearney also from Department of Public Health, East Carolina University, Greenville, NC used analytical research to support the idea that five non-clinical factors play a role in the health of children with asthma, and how its more prevalent among poor minority children living in urban areas. Kelly and Gregory point to these environmental patterns that influence childhood asthma: Housing, Pollution, Neighborhood, Poverty, and Violence. With individuals often facing multiple risk factors, inner-city residents and minority groups are often exposed to increased violence, and are thus more likely to experience psychosocial stress, which has been shown to increase asthma morbidity in adults and their children (Kozyrskyj).

Why Asthma is Important?

Asthma currently affects about 25 million people in the United States, including seven million children. More than half of people with asthma experience at least one asthma attack (a worsening of asthma symptoms) each year. These attacks lead to more than 1.7 million emergency department visits and about 450,000 hospitalizations annually. Moreover, while most deaths due to asthma are preventable, more than 3,000 people in the United States die from asthma each year. Asthma costs in the US grew from about \$53 billion in 2002 to about \$56 billion in 2007, in medical cost, lost school and work days, and early deaths in 2007 ("CDC Virtual Signs - Asthma in the US", 2019).

Parents who have children with asthma and adults who live with asthma are often confronted with a numerous of problems, including emergency department visits and unscheduled physician office visits, missed school and work days, daytime fatigue, reduced activity levels, emotional, and economic challenges. Asthma can be an expensive health challenge to effectively treat, which makes it difficult for people who are not wealthy or insured to receive the care needed to treat asthma. Because African Americans and Hispanics are less likely to have health insurance, it's obvious why they would face greater challenges treating asthma. About 1 in 9 (11%) non-Hispanic blacks of all ages and about 1 in 6 (17%) of non-Hispanic black children had asthma in 2009, the highest rate among racial/ethnic groups. The greatest rise in asthma rates was among black children (almost a 50% increase) from 2001 through 2009 (2007 ("CDC Virtual Signs - Asthma in the US", 2019). 1 in 4 African American

adults can't afford asthma medications, and 1 in 5 Hispanic adults can afford medication, combined with the fact they are more likely to live in the environments associated with asthma, there is no doubt these social determinants must be improved, in order to improve the health of minorities.

There is no cure for asthma, so more must be done to control this disease, by studying and understanding triggering factors surrounding this health burden. Asthma is a serious public health and economic concern for the United States. The average cost associated with Asthma each year is \$56 billion in total. The average cost associated with childhood asthma in 2009 was \$1,039 yearly. In 2008 alone asthma caused 10.5 million missed days of schools, and 14.2 million missed days of work (Wang). And this disease continues to be a problem. In the last decade the proportion of people with asthma in the United States grew by nearly 15% 2007 ("CDC Virtual Signs - Asthma in the US", 2019). We know from above there are patterns we can find in who is affected more by asthma. Women are more likely than men. Minorities race are more likely to have asthma than whites, and African-American children are 2 times more likely to have asthma than white children. Adults who didn't finish high school are more likely to have asthma than adults who graduated high school or college. Adults with annual income of \$75,000 or more are less likely to have asthma than those who earn less. Smokers are more likely to have asthma than non-smokers, and obese adults are most likely to have asthma. Blacks and Hispanics face greater asthma not because of genetics, but because they are more likely to fall into the patterns surrounding this disease, for example these individuals are more likely to live in urban communities, live in homes or housing complex with smokers, surrounded with polluted environments.

What's being done to address Asthma?

To control the asthma disparity, it becomes extremely important to make policies aimed at improving environmental factors and increasing access to healthcare to children and adults living with asthma. Access becomes critical to those ethnicities affected most ex. (Puerto Rican and African American) and those living with socioeconomic status associated with asthma ex. (Smoking, air pollution, violence, low education, house hold income). In addition to improved access to healthcare, new and ongoing policies should address the community level issues, such as improving poverty levels, creating community outreach programs, increasing education surrounding asthma triggers and control, improving housing conditions and decreasing environmental factors (ex. Smoking and air pollution). Because this is a multi-level disparity one single intervention is unlikely to work, it must be a combined effort from the politicians, healthcare providers, community leaders, and patients: everyone has an important role to fill.

What is Infant Mortality?

One of the largest gaps in health disparities lies within racial and ethnic differences in the infant mortality rate. The unique situation with infant mortality, shows that while some health disparities have improved over time, not all demographics have benefited equally from social and medical advances, which becomes important as we look at driving forces behind this health disparities (Matthews). The following research examines infant mortality rates in The United States, paying careful attention to the high rates of African Americans and Puerto Rican women. The CDC defines infant mortality as the death of an infant before his or her first birthday. The infant mortality rate, which will be used repeatedly to compare those affected, is the number of

deaths for every 1,000 live births. Unlike the previous health disparities, infant mortality is unique to women, which is where the focus of the following research will be spent.

Infant mortality is caused by five main reasons:

1. Birth defects – birth defects are common, costly, and a critical condition. Birth defects are changes to the structure of the infant. In some form all defects can affect the way the body works. The survival rate depends on the how severe the defect is, and what part of the body it affects (ex. Brain, heart, extremities). Some defects are more common than others and can be visible detected for example cleft lip. Others, usually more severe, like heart defects rely on special testing like echocardiograms for diagnosis. For the most part, researchers don't know where birth defects come from, however the factors I continue to focus on seem to play a large role, including our behaviors and the things in our environment, which disproportionately impacts minority women and 1 in every 33 babies born in the United States each year (OECD Health Statistics).
2. Preterm birth and low birth weight – Preterm birth is when a baby is born early or before full-term (37 weeks of pregnancy) have been completed. Babies born too early face greater risk of possible fatal conditions. Babies who survive preterm birth face challenges including difficulties breathing and feeding, cerebral palsy, developmental delays, vision and hearing problems. Preterm birth rates from 2007-2014 decreased, research shows the decline is due to the decline in number of teen and young mothers (Ferré). However, the preterm birth rate rose for the second straight year in 2016. Additionally, racial and ethnic differences in preterm birth rates remain. For example, in 2016, the rate of preterm birth among African-American women (14%) was about 50 percent higher than the rate of preterm birth among white women (9%) (Ferré).

3. Sudden Unexplained Infant Death Syndrome – SUIDS is the sudden, unexplained death of an infant younger than 1 year of age that remains unexplained after a complete investigation. This investigation can include an autopsy, a review of the death scene, and complete family and medical histories (Willinger). The deaths often happen during sleep or around the crib, or area where infant spends most of the time sleeping. Much like preterm and low birth weight, SUIDs have declined drastically since 1990's, however racial and ethnic difference continue to be a challenge for minorities. According to data provided by CDC/NCHS National Vital Statistics, Period Linked Birth/Infant Death Data, SUID rates per 100,000 live births African American (181.0) white (85.0) and lowest among Hispanics (52.2).
4. Maternal pregnancy complication - Women experience life threatening complications during pregnancy. The complications can involve the mother's health, the fetus, and in some cases both. Some of the challenges arise during pregnancy, however many complications are health concerns that were present before, hypertension, diabetes, obesity and weight gain, and sexually transmitted infections. Much of the same leading health challenges for non-pregnant minorities.
5. Injuries – Infant related injuries are a leading cause of death, and include drownings, suffocations, and abuse. Childhood injuries are responsible for approximately 16,000 deaths each year in the United States, and more than 70% of these deaths are the result of unintentional injuries (National Center for Prevention and Control). Most injury-related deaths in infants' 66 percent are the result of suffocation (National Center for Prevention and Control). Today, most suffocation deaths occur because infants are placed in sleeping environments that do not meet guidelines for infant safety. Most death related injuries are

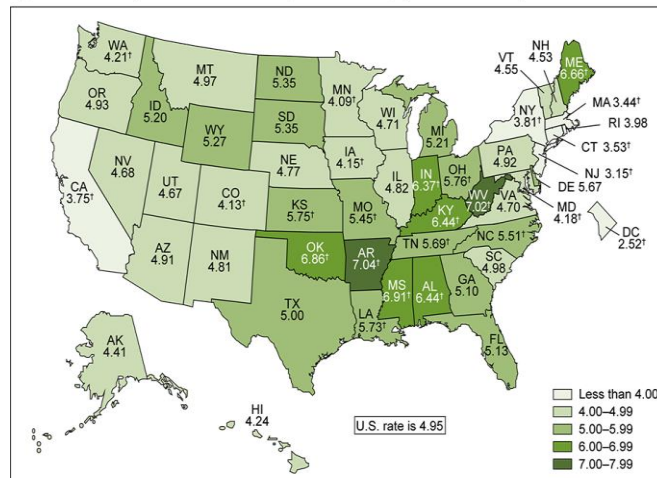
preventable by controlling the environment, examples being safe sleep methods and having parents engage in childhood safety courses. Unintended and intentional infant death is influenced heavily by maternal age; thus child abuse and prevention actions should be directed towards younger mothers.

Who infant mortality impacts?

Consistent with other health related disparities discussed in the previous research review, infant mortality disproportionately effects minorities, and those living in less than desired socioeconomic status. Figure 2(NCHS, National Vital Statistics System) and Figure 3(NCHS, National Vital Statistics System) show difference in infant mortality rates of Non-Hispanic white (Figure 2) and African-American women (Figure 3) from 2013-2015. In 2016 the infant mortality rates (death per 1,000 live births) by race were as followed:

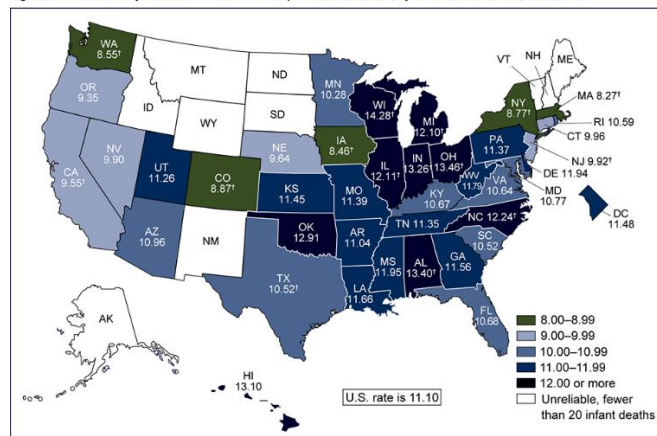
- African American: 11.4
- American Indian/Alaska Native: 9.4
- Native Hawaiian or Pacific Islander: 7.4
- Hispanic: 5.0
- Non-Hispanic white: 4.9
- Asian: 3.6

Figure 2. Infant mortality rates for infants of non-Hispanic white women, by state: United States, 2013–2015



* Significantly different from the U.S. rate.
 NOTES: Rates ranged from 2.52 to 7.04 per 1,000 live births. Access data table for Figure 2 at: https://www.cdc.gov/nchs/data/databriefs/db295_table.pdf.
 SOURCE: NCHS, National Vital Statistics System.

Figure 3. Infant mortality rates for infants of non-Hispanic black women, by state: United States, 2013–2015



* Significantly different from the U.S. rate.
 NOTES: Rates ranged from 8.27 to 14.28 per 1,000 live births. Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db295_table.pdf.
 SOURCE: NCHS, National Vital Statistics System.

The racial and ethnic disparities in infant mortality are highest among African Americans and are likely linked to many different non-genetic factors. Factors surrounding infant mortality are much like the factors surrounding many of the above healthcare disparities. Some of these include and not limited to:

- African-American relationship with healthcare
- Preconceived health status

- Maternal Age
- Access to appropriate maternal healthcare
- Social determinants
- Life Style behaviors

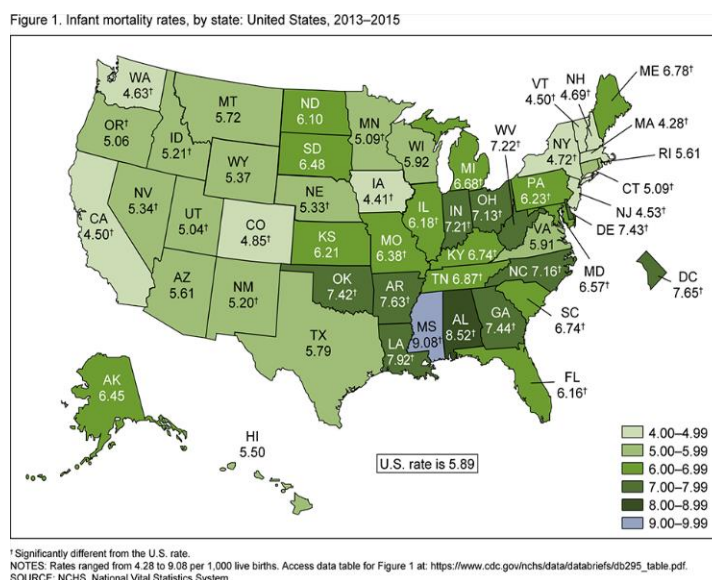
From the patient perspective improving lifestyle behaviors could have a huge impact on reducing the chances for birth complications. The main factors the patient can control to reduce risk are:

- Tobacco, alcohol, and substance use
- Inadequate nutrition
- Unhealthy weight
- Maternal Age

In addition to the patient doing their role in reducing risky behaviors linked to infant mortality. Political officials must also continue to address challenges surrounding the above factors. These include programs and assistants to insure equal access to healthy food options, physical space for exercise (ex. parks, sidewalks, safe neighborhoods), and continued community orientated health related educational programs.

Research suggest a pattern between geographical location, and those affected by infant mortality is prevalent. From review of previous research, we know that southern regions have lager population of individuals impacted by challenges of health which presents a challenge for the infant mortality disparities. A closer look at data provided in Figure 1(NCHS, National Vital

Statistics System). will prove, geographically infant mortality rates are higher among states in the south and some Midwest states. Fourteen states had an infant mortality rate that was significantly higher than the U.S. rate: Alabama, Arkansas, Indiana, Kansas, Kentucky, Louisiana, Maine, Mississippi, Missouri, North Carolina, Ohio, Oklahoma, Tennessee, and West Virginia.



Also, looking outside of genetics and the clinical setting, while possible contradictions do exist, overall infant mortality rates are known to decrease with increasing educational levels, which may reflect socioeconomic status, women with more education tend to have higher income levels. Mothers with more education are more likely to have received early prenatal care than less educated mothers; mothers with 16 or more years of education were 40 percent more likely to obtain first-trimester prenatal care than those with fewer than 12 years of education. Mothers with fewer than 12 years of education were almost 10 times as likely to smoke during

pregnancy as mothers with 16 or more years of education in 1996 (Li & Keith 2019). These maternal risk factors are likely contributors to the higher incidence of low birthweight and infant mortality among the infants of less-educated mothers (Pamuk, Makuc, Heck, Reuben, Lochner. 1998).

Maternal age also influences infant mortality. Infants of teenage mothers and mothers aged 40 and over, had the highest rates infant mortality. Teenage mother 9.78 deaths per live births and mothers over 40 8.01 deaths per live birth, both substantially greater than the 5.98 nation average. In 2006, among births to teenagers, infants of the youngest mothers (under 15 years) had the highest mortality rate 18.14. The rate for infants of mothers aged 15–17 was 10.42. The rate for infants of mothers aged 18–19 was 9.30 in 2006 and the rate for infants of mothers aged 20–24 was 7.55 in 2006 ("Infant Mortality Maternal and Infant Health Reproductive Health CDC", 2019).

A less research and documented factor related to high infant mortality rates among African American women, is the experience of being a black woman in American which, in itself is a risk factor. The stress levels of African American women must be paid more attention to, and how they live their lives, and are treated by health professions.

Why is Infant Mortality Important?

Studying the infant mortality rate becomes important not only to those affected but to the entire U.S. healthcare system. Infant mortality has long been a basic measure of public health around the world. The future of our lives, community, nation, and world depends on the health of our children. Improving and understanding the health for mothers and children determines the well-being and health challenges of future generations.

What's being done to address Infant Mortality?

The CDC is committed to improving birth outcomes. This is a complex health issue that requires work from all related public health agencies. In the U.S. infant mortality is lower than it was 10 years ago. More specifically infant mortality declined from 6.89 infant deaths per 1,000 live births in 2005, to the current the current U.S. average of 5.9 deaths per 1,000 live births ("Infant Mortality Maternal and Infant Health Reproductive Health CDC", 2019). Environmental and social factors such as access to quality health care (before pregnancy, during pregnancy, between pregnancies care) and early intervention services, educational, employment, and economic opportunities, social support, and availability of resources to meet daily needs influence maternal health behaviors and health status (Braveman). Improving sociodemographic factors and studying the effects on maternal and infant health combined with continued clinical service are a great step in lowering infant mortality rates.

Many of these issues are being addressed through preventative opportunities and community-based interventions programs, many of which are prevention components of the Affordable Care Act. Programs such as the Special Supplemental Food Program for Women, Infants, and Children (WIC) or Aid to Families with Dependent Children (AFDC) could open new avenues for research on the biological, social, and economic aspects of maternal age and reproductive outcomes. In the meantime, we must continue to develop new strategies to lower the mortality risk of babies born to teenagers and to eliminate the racial disparity at all maternal ages. For neonatal mortality, this includes providing adequate family planning services to reduce unwanted pregnancies, and renewing efforts to provide teenagers with early and complete prenatal care. Assisting teenagers to enhance their parenting skills. More importantly, even if we can reduce infant mortality among babies born to adolescents, the teenage mother and her

offspring probably will continue to be at a social disadvantage (Morris). We must continue to seek new ways to help teenagers postpone childbearing.

Through research, and with the help of federal funding the CDC is working to improve infant mortality. These improvements come through programs and efforts to better understand the cultural needs of those affected. Improvements to prenatal care is one action being taken by the CDC, which provides support to perinatal quality collaboratives (PQCs), which according to the official CDC website, are “state or multi-state networks of teams working to improve health outcomes for mothers and babies.” Funding supports the capabilities of PQCs to improve the quality of perinatal care in their states, including efforts to reduce preterm birth and improve prematurity outcomes.

In 2015 sudden unexpected infant death accounted for 15% off all infant deaths in the United States, most of which were three main types: unknown causes, accidental death, of suffocation in bed. One response to the infant mortality burden, was the Safe to Sleep Campaign, formerly known as the Back to Sleep campaign. Either name, both serve the same purpose, to improve the SIDS rates by promoting actions parents and infant caregivers can take to help reduce the risk sleep related infant deaths.

What is HIV/AIDS?

So far, we’ve learned the CDC and other public health organizations face the challenges of addressing health disparities, another health disparity research focuses on is the uneven prevalence and outcome of HIV/AIDS disease among different populations. Starting with background on HIV/AIDS. First identified in 1981, HIV is the cause of one of humanity’s deadliest and most persistent epidemics. HIV stands for human immunodeficiency virus and is

the virus that causes AIDS, however not everyone with HIV develops AIDS. HIV attacks and harms the immune system by destroying white blood cells. White blood cells are an important part of the blood system, which is also composed of red blood cells, platelets, and plasma. White blood cells only account for approximately 1% of blood system, however white blood cells are critical for good health and protection against illness and disease ("What Are White Blood Cells? - Health Encyclopedia - University of Rochester Medical Center", 2019). Weakened white blood cells puts patients at risk for developing serious infections ("What Are White Blood Cells? - Health Encyclopedia - University of Rochester Medical Center", 2019). HIV frequently spreads through unprotected sex, sharing of drugs needles, from mother to baby and through blood contact of an infected person.

AIDS stands for acquired immunodeficiency syndrome. AIDS is the final stage of HIV infection, When the number of your CD4 cells falls below 200 cells per cubic millimeter of blood (200 cells/mm³), you are considered to have progressed to AIDS. In someone with a healthy immune system, CD4 counts are between 500 and 1,600 cells/mm³ ("What Are HIV and AIDS?", 2019). Once a person develops AIDS the immune system becomes so badly destroyed, the body becomes vulnerable to infections otherwise healthier individuals would typically fight off. An untreated individual with AIDS is expected to live an estimated 3 years, combined with an opportunistic illness the same individual without treatment life expectancy drops to 1 year.

Treatment for HIV/AIDS is available, although once a person is infected they live with the disease forever. The medicine used to treat HIV is called antiretroviral therapy or ART. If people with HIV take ART as prescribed, their amount of HIV in their blood can become undetectable. In the United States most HIV case don't develop into AIDS, due to advances in medical treatments, However, inequalities are present in the way people living with HIV

progress through the various stages of HIV, based on previous health conditions, genetics, healthcare provider, medication, and healthy lifestyle choices.

Why HIV/AIDS is Important?

HIV/AIDS is important to the health and well-being of society because those affected 1) are at risk of infecting others 2) people living with untreated HIV are vulnerable to life threatening infections and complications. The U.S. government spends more than \$20 billion annually in direct health expenditures for HIV prevention and care. However, this fight is important because research will show not everyone is benefiting equally from medical advances. Certain groups are still very much at risk and facing great challenges in dealing with this health burden.

Who is Impacted by HIV/Aids?

Approximately 1.1 million people in the U.S. are living with HIV today. About 15 % of them (1 in 7) are unaware they are infected. An estimated 38,700 Americans became newly infected with HIV in 2016 (CDC. Diagnoses of HIV infection in the United States and dependent areas, 2017). Those groups who report the highest prevalence of HIV/AIDS are consistent with the majority of the other health illnesses discussed, including minorities and the economically disadvantage. Those living in the south and rural areas have been considered at risk populations for increase illness and death from HIV/AIDS. In addition to these groups, Gay and Bisexual Men and people who inject drugs are at high risk.

African Americans had the highest HIV/AIDS infection rate in 2004, with 69.3 cases per 100,000 in population, 8.5 times the rate for whites. African Americans accounted for 50% of all HIV/AIDS cases diagnosed in 2004. In 2004, males accounted for 73% of all HIV/AIDS cases

among adults and adolescents. In addition, men who have sex with men accounted for 65% of cases among men (Steele et al. 2007).

An estimated 38,700 Americans became newly infected with HIV in 2016. Gay, Bisexual, and men who participate in sexual activity with other men represent the largest group of at-risk individuals by group, accounted for 26,000 new case per year (CDC. Estimated HIV incidence and prevalence in the United States, 2010–2016).

What factors put individuals at risk for HIV/AIDS?

Environment

In the above research location was discussed in terms of geographical location which also plays a role in determining factors for HIV/AIDS disparity, but an interesting fact to note is how physical location also plays a role. According to *the Health Disparities in HIV/AIDS, Viral Hepatitis, Sexually Transmitted Diseases, and Tuberculosis in the United States : Issues, Burden and Response*.

“The physical locations (e.g., prisons) and social networks within which people interact can promote or encourage risky health behaviors and may account for some health disparities. Following changes in U.S. drug policy in the 1980s, the number of individuals in prisons increased dramatically. It has been reported that, while the number of white prisoners incarcerated for drug offenses rose by a factor of seven between 1983 and 1998, Hispanic drug-related incarcerations increased 18-fold, and African-American drug incarcerations increased more than 26-fold. Compared with the general population, persons incarcerated in correctional systems have a disproportionately greater burden of

infectious diseases, including HIV, viral hepatitis, STDs, and tuberculosis infections (Steele et al. 2007)”.

The neighborhood and physically environment outside of prison also plays a major role in the risk of acquiring and spreading HIV. Especially the way individuals socialize sexually. The term sexual network refers to a set of people who are directly or indirectly contacted through sexual contact (Flom). Recent studies suggest that there are differences between blacks and whites in the type and number of partners they include in their sexual networks (Adimora). These differences have been influenced by some of the same factors that contribute to health disparities (e.g., residential segregation by race, high incarceration rates among African-American males, and poverty). In one analysis, the data indicated that STDs remain high within the black population because they are more likely than other racial and ethnic groups to choose other African Americans as partners, and this group bears a disproportionate burden of STDs (Steel et al. 2007).

Geographical Location

Predominately the southern region of the United States faces the greatest burden of all health disparities. Unfortunately, data suggest HIV/AIDS is no different. HIV diagnoses are not evenly distributed across states and regions. In 2017, the Southern region of the U.S. accounted for more than half (52%) of the new HIV diagnoses in the U.S., followed by the West (19%), the Northeast (16%), and the Midwest (13%) (CDC. Diagnoses of HIV infection in the United States and dependent areas, 2017.)

In 2016, there were 15,807 deaths among people with diagnosed HIV in the United States. Nearly half (47%) of these deaths were in the South; 3,630 (23%) were in the Northeast;

2,604 (16%) were in the West; 1,720 (11%) were in the Midwest (CDC. Estimated HIV incidence and prevalence in the United States, 2010–2016)

Age

Data suggest some disparities are to be expected and inevitable for example, the HIV prevalence by patient age. between 2010-2016, the annual number of HIV infections decreased among persons aged 13–24 and 45–54 but increased among persons aged 25–34. The number of infections remained stable among persons aged 33-44 and ≥ 55 years (C. Brooke Steele). Age is also an important factor, controlling HIV/AIDS begins with being aware of the infection. According to the CDC, Young people were the most likely to be unaware of their infection. In 2015, among people aged 13-24 who were living with HIV, an estimated 51% didn't know (Steele et al. 2007).

Race

Racially inequalities exist surrounding the disease such as access to HIV prevention service by race or sex. According to the CDC the decline in HIV infections has plateaued because effective HIV prevention and treatment are not adequately reaching those who could most benefit from them. These gaps remain particularly troublesome in rural areas, in the South and among disproportionately affected populations like blacks/African Americans and Hispanics/Latinos. So, while these groups represent the largest number of those affected, they face the greatest challenges in obtaining medications and treatment. By race/ethnicity, African Americans and Hispanics/Latinos are disproportionately affected by HIV in 2017(CDC. Diagnoses of HIV infection in the United States and dependent areas. 2017)

- African Americans accounted for 43% (16,694) of HIV diagnoses and 13% of the population.
- Hispanics/Latinos accounted for 26% (9,908) of HIV diagnoses and 18% of the population.

Sexual Orientation

Review of previous research suggest Gay, Bisexual, and men who engage in sexual activities with other men are at a greater risk of becoming infected with HIV. In 2017 gay and bisexual men accounted for 66% (25,748) of all HIV diagnoses and 82% of HIV diagnoses among males (CDC. Diagnoses of HIV infection in the United States and dependent areas, 2017) Much like the mentioned effects of an individual falling into multiple at-risk categories, African-American gay and bisexual men accounted for the largest number of HIV diagnoses 9,807, followed by Hispanic/Latinos 7,436 and whites 6,982 (CDC. Diagnoses of HIV infection in the United States and dependent areas, 2017) This becomes important information, when trying to improve this health disparities. It gives health professionals, policy makers, community leaders, and everyone involved a large at-risk group to focus on.

What's being done to address this issue?

Since the HIV/AIDS epidemic of the late 1980's tremendous work and effort has been made towards the fight against the deadly infection, however much work is still to be done. Basic practices everyone can do address the urgency to reduce HIV, include practicing abstinence, participating in safe sexual behaviors, never sharing used needles, and using standard precautions when encountering blood.

However, for those at-risk groups and individuals already infected, help from the federal, state, and local policy makers and health officials is usually required. The most recent effort in the fight against aids came in 2019 state of the Union Address when The President of The United States revealed his ambitious budget proposal for ending HIV Epidemic in America “*Ending the HIV Epidemic: A Plan for America*”. The broad goal of this proposal is to reduce new infections by 75% in the next 5 years and 90% in the next 10 years. The plan is the most recent federal response to one of the most important public health challenges in history. According to *The U.S. Department of Health and Human Service* :

“The plan will fund three major areas of action:

1. Increasing investments in geographic hotspots through our existing, effective programs, such as the Ryan White HIV/AIDS Program, as well as a new program through community health centers that will provide medicine to protect persons at highest risk from getting HIV.
2. Using data to identify where HIV is spreading most rapidly and guide decision-making to address prevention, care and treatment needs at the local level.
3. Providing funds for the creation of a local HIV HealthForce in these targeted areas to expand HIV prevention and treatment”

This plan strives to continue to help those at risk and/or already exposed to HIV by providing funding in these critical areas.

1. Diagnose

Blood Test are given to tell if individuals are infected. National Hotlines do offer free sites. This is an important step towards addressing the HIV disparity, as knowing one is infected is the beginning of treatment.

2. Treat

There is currently no cure for HIV/AIDS, however medications do exist that help fight HIV and lowers the risk of infected individuals spreading the infection to others. According to the *National Institute of Allergy and Infectious Disease*:

“Anti-HIV medication allows people infected living with HIV to lead longer, healthier lives. When taken as prescribed, these daily medications, called antiretroviral therapy, will suppress blood levels of the virus to durably “undetectable,” and prevent sexual transmission of HIV.

3. Protect

Knowing the at-risk groups allows public health officials to target these areas, creating opportunities for these individuals to get tested and protect themselves through preventative measures is critical to lowering the number of new cases. Also, in the *National Institute of Allergy and Infectious Disease*:

“researchers have developed several methods of preventing HIV acquisition, including pre-exposure prophylaxis, or PrEP, post-exposure prophylaxis, or PEP, and voluntary adult medical male circumcision (“What Are HIV and AIDS?”, 2019)”

In a combined effort to protect those at risk of being infected with HIV, a huge push for needle exchange programs has also been made. About 1 in 10 new HIV diagnosis in the United States are attributed to injection drug use or male-to-male sexual contact *and* injection drug use (CDC). To help prevent this high risk of individuals who either use or share needles, individuals can access free sterile needles and syringes, through community-based Needle Exchange Programs. In addition, most prevention facilities offer this preventive measure along with condoms, education, and safe needle practices, all of which encourage healthy behaviors, thus reducing the likelihood of becoming impacted with HIV/AIDS.

4. Respond

Once individual are infected it's important to respond quickly. Since those affected most, usually fall into multiple at-risk categories (African-American, low-income, disadvantage environment, little or no medical coverage) federal programs such as the Ryan White HIV/AIDS Program provides benefits only to those infected with HIV/AIDS and meet the requirements for "low-income" and do not have enough health coverage or financial resources.

5. HIV HealthForce

Supporting community-based leaders working in the HIV "hotspots" for eliminating HIV/AIDS. This supports comes through funding existing prevention programs. The CDC has been leading the fight for health improvement initiative surrounding HIV/AIDS. The fight includes programs such as HIV Prevention Strategies Plans, Advancing HIV Prevention, and Heightened National Response to the HIV/AIDS Crisis Among African Americans. While each of these plans have specific goals, they all help serve one common purpose: reducing the HIV/AIDS health burden and targeting those groups who are most at risk.

What is Cardiovascular Disease?

Cardiovascular disease is the leading killer of men and women in the U.S., according to the American Heart Association. Cardiovascular disease is a general term for several diseases and illnesses that affect one, or several functions of the heart, and/or vascular system. Basic overview of the heart shows why this disease and organ health is so important to health and well-being of an individual. Powered by muscles the heart is responsible for beating over 100,000 times a day, pushing over 5,000 gallons of blood through our bodies every day. Along with blood, the heart carries oxygen and nutrients to other organs of the body. The vascular system is comprised of series of blood vessels, which are responsible for carrying the blood to and from the bodies organs.

Cardiovascular disease, also called heart disease includes numerous problems affecting one or several of the above mentioned functions of the cardiovascular system. Many of the cardiovascular diseases are related to a process called atherosclerosis, which is a condition that develops plaque buildup on the walls of the arteries, the build makes it difficult for blood to flow, this can cause heart attacks or strokes (www.heart.org. (2019).

According to The American Heart Association, heart attacks occur when the blood flow to a part of the heart is blocked by a blood clot. If the clot blocks blood flow completely, that part of the heart cannot receive proper nutrition causing the portion of the heart to die (www.heart.org. (2019).

Stroke occurs when a blood vessel that feeds the brain gets blocked. When the blood supply to a part of the brain is restricted, brain cells will begin to die. This can result in the loss

of functions controlled by the brain. These functions can include everyday activities such as walking, talking, and other controlled movements of the body (www.heart.org. (2019).

Hemorrhage stroke is when a blood vessel within the brain burst. Often times the pressure of blood being pumped through the vascular system is so great, the vessels will literally burst. Hemorrhage stroke is often caused by hypertension, or high blood pressure. (www.heart.org. (2019).

Heart failure is another common cardiovascular disease. Sometimes called congestive heart failure, is when the heart isn't pumping blood as well as it should. Heart failure is a chronic progressive condition, when the heart is not pumping blood correctly its unable to meet the body's needs for oxygen. (www.heart.org. (2019).

Who does cardiovascular disease affect?

Cardiovascular affects all Americans. Heart disease is the leading cause for both men and women, and because it impacts so many people, it's perhaps one of the most important health burdens to focus on. Every year an estimated 1 in 4 people in the United States die from a cardiovascular related disease, that's 610,000 people (CDC, NCHS. Underlying Cause of Death 1999-2013). Below are percentages of all cardiovascular related deaths by race/ethnicity, this information was gathered from the CDC's percent of total deaths rates in the United States (CDC. Deaths, percent of total deaths):

Race/Ethnic Group	% of Deaths
American Indians or Alaska Natives	18.4
Asians or Pacific Islanders	22.2

Non-Hispanic Blacks	23.8
Non-Hispanic Whites	23.8

Factors surrounding those Impacted?

To recapture the facts from above heart disease is caused by damage to a portion of the heart due damaged vascular system, or insufficient supply of blood and oxygen to the heart. Some types of heart disease are genetic. These alongside congenital heart defects can occur before a person is born. However, there are a number of factors that contribute to an increase risk of an individual having this health burden (www.heart.org. (2019). The focus to improving the number one health burden of all Americans should start with improving the lifestyle changes, and the challenges that surround lower status socioeconomic status individuals. Having high blood pressure, high cholesterol, and smoking are key risk factors for heart disease, about 47% of Americans have at least one of these risk factors (Fryar). Other medical factors and lifestyle choices also puts individuals at greater risk for cardiovascular disease including: Diabetes, Obesity, Poor Diet, Lack of physical activity, and substance abuse.

Geographical Location

Individuals risk of developing cardiovascular diseases varies based on sever factors including biological, social factors, lifestyle behaviors, age, based on a review of a map provided by CDC showing Heart Disease Mortality by state in 2017, geographical location patterns are also present. While this may be contributed to greater chances of being exposed to one or more risk factor, the Southeastern region had greater mortalities from cardiovascular diseases, while people who were less impacted tended to live in Northwestern states. The top 10 states with

highest rates of Heart disease related deaths per 100,000 were: West Virginia 192.0 Kentucky 195.9 Michigan 196.1 Nevada 199.3 Tennessee 202.2 Louisiana 214.4 Alabama 223.2 Arkansas 223.8 Mississippi 231.6 Oklahoma 237.2 (CDC "Stats of the States - Heart Disease Mortality", 2019). 6 of the 10 of these 10 states with highest death rates are considered southern states, this information is important for government, state and local healthcare providers when considering cardiovascular disease “hotspots” to concentrate preventative efforts on.

Socioeconomic factors

Economics may play a role in those affected. People with very low incomes struggle to provide healthy food, and healthy dieting options, is paramount to maintaining and preventing cardiovascular diseases. Having little income also makes it difficult to prioritize exercise, eating healthy, poverty even makes it difficult having access to quality healthcare. Living in low economic status puts individuals at right risk of having cardiovascular disease, and these lower-income communities are less likely to attract quality healthcare workers, or investments in existing healthcare facilities.

Race

Race plays a tricky role in terms of cardiovascular disease. Efforts will be key to eliminating racial and ethnic disparities in health – and essential to improving population-level cardiovascular care. For researchers and clinicians undertaking such improvements in care, this review may help to focus efforts on areas in which disparities in risk are greatest or most urgent. Additionally, this review may provide policymakers with an entry point for investigating more impactful approaches to addressing population-level disparities through better informed policy and funding decisions. The percentage of African Americans impacted by cardiovascular

diseases is equal to that of white Americans. As we've learned, the significant role race plays in cardiovascular disease is African Americans have higher chances of participating in those behaviors that place them in high risk categories of being burdened by this health issue.

Why is cardiovascular health important?

Similar to several health burdens discussed, the change in population demographics makes cardiovascular disease an important issue to focus on. Within the U.S. In the next 35 years, it is predicted that non-Hispanic whites will no longer comprise the majority of the U.S. population, due to increased numbers of Hispanics and Asians. There are well-established disparities in cardiovascular health outcomes between minority and non-minority groups across the U.S. Understanding varied risk factor profiles, and how to treat a changing population, are critical to achieving continued improvements in care (Bureau U.S. An Older and More Diverse Nation). This health issue will continue to rise causing a challenge financially and ethically if left unattended. Already a challenge, Cardiovascular disease causes one in three (approximately 800,000) deaths reported each year in the United States (1). Annual direct and overall costs resulting from CVD are estimated at \$273 billion and \$444 billion, respectively (2).

What is being action is being taken?

Strategies aimed at improving cardiovascular disease focus on addressing leading risk factors, including obesity, hypertension, high blood pressure, and tobacco use. To estimate the frequency of these risk factors the CDC analyzed data from National Health and Nutrition Examination Survey (NHANES), the results from the report concluded that 49.7% of U.S. adults have at least one risk factor (Farley). To reduce the prevalence of cardiovascular disease factors

the U.S. Department of Health and Human Service, worked alongside the CDC, nonprofit and private organizations to create Million Hearts, which is one of several initiatives aimed at addressing cardiovascular diseases.

Million Hears first launched in 2012, became a nationwide initiative with a goal of using national cardiovascular disease prevention efforts and evidence-based strategies to prevent a million cardiovascular events in 5 years. This charge was established with The U.S. Department of Health and Human Services, co-led by the Centers for Disease Control and Prevention, and the Centers for Medicare & Medicaid Services. According to the official website millionhearts.hhs.gov, based on extensive research the Million Hearts have established these goals to help address the CV issue (“About Million Hearts,” 2012):

- ***“Optimizing Care*** by using teams, health information technology, and evidence-based processes to improve the ABCS (Aspirin when appropriate, Blood pressure control, Cholesterol management, and Smoking cessation), increase use of cardiac rehab, and enhance heart-healthy behaviors.
- ***Keeping People Healthy*** with public health efforts that promote healthier levels of sodium consumption, increased physical activity, and decreased tobacco use.
- ***Improving Outcomes for Priority Populations*** selected based on data showing a significant CV health disparity, evidence of effective interventions, and partners ready to act.”

The Million Hearts initiative proved to be a success, during the first 2 years alone an estimated 115,000 cardiovascular events were prevented (Ritchey MD). While this number may not seem to be a lot, one life saved is progress made. This prevention came by Million Hearts

supporting activities and policies that created healthier habits and environments. The supportive efforts made by Million Hearths helped bring the goal of preventing cardiovascular to fruition by:

- **Reduce Smoking.** An estimated 7 million fewer people smoked cigarettes in 2015 than in 2011, quitting smoking leads to immediate reduced risk for heart attack and strokes (Jamal et al., 2016).
- **Reduce sodium intake.** Million Hearts helped support the food industry in gradually reducing sodium intake in processed and commercially prepared food. This was important step to help Americans gradually reduce sodium intake, which will help improve blood pressure.
- **Eliminate trans-fat intake:** Partially hydrogenated oils will be removed from the food supply by 2018. This action is expected to prevent thousands of fatal heart attacks every year (Food and Drug Administration)

The government can continue to support initiatives like the Million Hearts (CDC and the Centers for Medicare and Medicaid Services). Government officials can help address the social challenges surrounding cardiovascular disease improving funding towards healthcare proven to work.

Healthcare Professionals can continue to focus on a collaborative approach to promote overall health and well-being of their patients including promoting skills of everyone in the health field treat those at risk of health disease, physical therapist to promote physical activity and dieticians to improve healthy eating habits.

State and Local government and healthcare professionals can use their states cardiovascular disease data to help promote preventative organizations such as Million Hearts locally. Local government officials can continue to the fight to promote diminishing tobacco use, by creating smoke free environments and programs to help tobacco users quit. Also, state and local health departments can help insure the communities they serve have access to healthy food options, and make communities more physical activity friendly (ex. bike trails, safe parks, sidewalks)

Employers can continue to offer employees with the insurance coverage needed to help treat and prevent cardiovascular disease. Insurance coverages are important because they cover medicine needed, blood pressure monitors, and preventative services. Employers can also strive to offer smoke free spaces and access to health food options.

Individuals must continue to seek information regarding their personal health. Individuals should continue to know the importance of eating heart healthy diets, getting adequate physical exercise, making healthy lifestyle choice, and avoiding behaviors that place them at risk for being impacted with cardiovascular disease.

For public health providers and policy makers the research reviewed helps to have a better understanding of the social challenges surrounding cardiovascular, which will help them have a pinpointed focus when trying to eliminate racial/ethnic and socioeconomic disparities in cardiovascular health. For example, smoking policies aimed at eliminating harmful impacts of tobacco smoke in public areas, has a great impact on cardiovascular health. This non-clinical level approach is imperative to addressing disparities through better informed policy and funding decisions. Much like any health disparity burden, the elimination is complex issue, that must be addressed with a collaborative effort.

Conclusion

What Health Disparities Are?

In conclusion health disparities are high burden of illness, injury, disability or death experienced by one population group versus another (The Henry J. Kaiser Family Foundation, 2019). For most of the above research the disparities were viewed from a perspective of race, many of the health issues disproportionately affected minorities. However, health disparities occur in many different groups including socioeconomic status, age, location, gender, disability, and sexual orientation (The Henry J. Kaiser Family Foundation, 2019).

Why Health Disparities are Important?

Healthcare disparities matter because, below quality health for any group of people results in limited improvements quality of the U.S. health system as whole. It's important to do our part as health officials, community leaders, patients and politicians to insure every individual, regardless of demographics has the necessary tools to obtain optimal health. Besides the obvious ethical reason of keeping people healthy we learned health disparities have financial toll on the health system as well. Recent analysis estimates that 30% of direct medical costs for Blacks, Hispanics, and Asian Americans are excess costs due to health inequities and that the economy loses an estimated \$309 billion per year due to the direct and indirect costs of disparities (The Henry J. Kaiser Family Foundation, 2019) . Among the findings in the recent CDC Health Disparities and Inequalities Report is that, if African Americans had had the same adjusted rate of preventable hospitalizations as non-Hispanic Whites from 2004 to 2007, it would have resulted in about 430,000 fewer hospitalizations for non-Hispanic Blacks and \$3.4 billion in savings ("CDC Health Disparities & Inequalities Report. Minority Health CDC", 2019) As the population becomes more diverse, with people of color projected to account for over half of the

population by 2050, it is increasingly important to address health disparities (The Henry J. Kaiser Family Foundation, 2019).

Factors Leading to Health Disparities

Healthcare disparities are a growing and complex issue; however, we know several interconnected factors that lead to this health problem including: individual, provider, health system, society, and environment factors, all have role on the status of health, and health disparities. Individual factors include lifestyle factors, like maintaining healthy weight, limiting tobacco use, and not abusing illegal drugs. Many of these lifestyle choices were directly tied to the above health conditions. Provider factors include discrimination against certain individuals and barriers to patient-provider communication. These barriers can come from preexisting conditions, race, ethnicity, socioeconomic status and lingual difference. How health care is structure also plays a role in shaping health care disparities, often time the best care goes to those who can afford it. Social and Environmental factors such as poverty, education, access to health care and neighborhood safety also play a role in health and well-being. Where an individual lives also impacts his or her likelihood of having coverage, as uninsured rates vary widely across states, from 4% in Massachusetts to 24% in Texas (The Henry J. Kaiser Family Foundation, 2019). All contributing factors are very much interconnected, with many patients often being negatively impacted by multiple factors increasing their chances for being victims of health disparities. For example, an individual with low educational levels (at or below high school level) is more like to earn below poverty yearly income levels, which would limit living situations to less than desirable environments, increasing chances for neighborhood violence, which would all lead to this individual having a much greater chance of facing healthcare challenges.

Who Health Disparities Impact?

Ultimately health inequalities have a domino effect on the entire United States health system. As the cost associated with treating health inequalities touches everyone whether directly or indirectly. Today certain groups are at risk of being uninsured, lacking access to healthcare, and experiencing worse health outcomes. This group predominantly includes minorities and low-income individual.

Action Being Taken to Address Health Disparities

Healthcare disparities became recognized federally in 2000 after the release of two General Surgeons reports that showed disparities in tobacco use by race and ethnicity (The Henry J. Kaiser Family Foundation, 2019). To follow these reports were the first major legislation focused on health disparities. The Minority Health and Health Disparities Research and Education Act of 2000 created the National Center for Minority Health and Health Disparities (The Henry J. Kaiser Family Foundation, 2019), this then allowed the AHRQ to measure and track data on reducing disparities. This was a major step towards addressing the health disparity challenge. Building on the research and data collected by the AHRQ several other reports have added to data, helping to address quality of care. Awareness of disparities has increased among all involved in correcting this issue including government officials, general public, healthcare providers, and community leaders. While this was not the final destination on the journey to addressing the issue, providing data and awareness was a major step towards closing the health equality gap.

A second major achievement towards closing the health equality gap, was addressing the challenge many Americans faced which was being uninsured, and lacking access to quality healthcare. The Affordable Care Act impacted health and health care disparities in terms of health coverage, access to care, delivery of care, and public health prevention efforts. The ACA

increased federal awareness to address the health disparity challenge by enriching the National Center for Minority Health and Health Care Disparities, this helped to create Offices of Minority Health agencies to help promote disparity reduction efforts (The Henry J. Kaiser Family Foundation, 2019). For example, the ACA provides funding to support training of health professionals, whom help educate communities on the importance of many of the discussed health disparities.

Along with increasing the prevention efforts, the ACA made health coverage available to millions of uninsured Americans. These expansions are particularly important for minorities and low-income individuals as they are the ones who make up a disproportionate share of the uninsured, and large percentage of those facing health burdens.

The conclusion to the health disparity challenge is this: Ethnic/racial minorities and lower socioeconomic populations will continue to grow in the future, the health and well-being of these communities becomes a serious public health issue. On the patient level, individuals must understand the importance of making comprehensive healthy lifestyle behaviors (diet and exercise, and not smoking). At the healthcare providers level, healthcare professionals must become aware of the unintentional bias and the lack of understanding towards the needs and differences of all patients, regardless of race/ethnicity and socioeconomic status. Politicians must work to better understand communities, including risk factors, systematic barriers to quality health, and cultural differences, as it rates to treatment and modern-day medicine, and insuring the infrastructure, policies, and funding are in place to meet the needs of the entire public. Health disparities are complex challenges that one can't assume will be solved with genetic and clinical approach, rather health challenges must be addressed with multi-level solutions to lessen health care disparity problem, creating a healthier society for us all.

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